PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	11.10.2005

Applicant's or agent's file reference	IMPORTANT NOTIFICATION
PC25320A	

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2004/003694	08.11.2004	21.11.2003

Applicant
PFIZER PRODUCTS INC. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the International preliminary examining authority:

European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PC25320A	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/IB2004/003694	International filing date *(day/month/year)* 08.11.2004	Priority date *(day/month/year)* 21.11.2003

International Patent Classification (IPC) or national classification and IPC
A61K39/39, A61P37/04, A61P31/04

Applicant
PFIZER PRODUCTS INC. et al.

1. This report is the International preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *sent to the applicant and to the International Bureau)* a total of sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in Item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the opinion
   - ☐ Box No. II Priority
   - ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☒ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
17.12.2004	11.10.2005
Name and mailing address of the International preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Rankin, R Telephone No. +31 70 340-

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-38	as originally filed
Claims, Numbers	
1-18	as originally filed
Drawings, Sheets	
1-2	as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 14-17

because:

☒ the said international application, or the said claims Nos. 14-17 (Partially, for reasons of industrial applicability) relate to the following subject matter which does not require an international preliminary examination (specify):

see separate sheet

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form ☐ has not been furnished

☐ does not comply with the standard

the computer readable form ☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	6-13, 17, 18
	No:	Claims	1-5, 14-16
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-18
Industrial applicability (IA)	Yes:	Claims	1-13, 18
	No:	Claims	14-17

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Claims 14-17 relate to subject matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject matter of these claims (Article 34(4)(a)(i) PCT)

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

5.1 For the assessment of the present claims 14-17 on the question whether they are industrially applicable, no unified criteria exist within the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognise as industrially applicable the subject matter of claims to the use of a compound in medical treatment, but may allow, however, the use of such a compound for the manufacture of a medicament for a new medical treatment.

5.2 Cited Documents

Reference is made to the following documents:

D1: SATO YUKIO ET AL: "Adjuvant effect of a 14-member macrolide antibiotic on DNA vaccine" CELLULAR IMMUNOLOGY, vol. 197, no. 2, 1 November 1999 (1999-11-01), pages 145-150, XP002316892 ISSN: 0008-8749

D2: TOMASIC JELKA ET AL: "The effect of cefodizime and related compounds on humoral immune response in rabbits" ACTA PHARMACEUTICA (ZAGREB), vol. 44, no. 2, 1994, pages 109-116, XP008042733 ISSN: 0354-2971

D3: WOO PATRICK C Y ET AL: "Antibiotics modulate vaccine-induced humoral immune response" CLINICAL AND DIAGNOSTIC LABORATORY IMMUNOLOGY, vol. 6, no. 6, November 1999 (1999-11), pages 832-837, XP002316893 ISSN: 1071-412X

D4: YANG D ET AL: "Mammalian defensins in immunity: more than just microbicidal" TRENDS IN IMMUNOLOGY, ELSEVIER, CAMBRIDGE, GB, vol. 23, no. 6, 1 June 2002 (2002-06-01), pages 291-296, XP004365772 ISSN: 1471-4906

D5: CONFER A W ET AL: "Immunogenicity of recombinant Mannheimia haemolytica serotype 1 outer membrane protein PlpE and augmentation of a commercial vaccine" VACCINE, BUTTERWORTH SCIENTIFIC. GUILDFORD, GB, vol. 21, no. 21-22, 20

June 2003 (2003-06-20), pages 2821-2829, XP004429680

5.3 Novelty

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-5, 14-16 is not new in the sense of Article 33(2) PCT.

5.4 D1 discloses the adjuvant effect of erythromycin on immune responses elicited by a DNA vaccine (cf the whole document). Consequently, the subject matter of claims 1-5 and 14-16 is not novel with regard to D1.

5.5 D2 discloses the adjuvant effect of cefodizime on adaptive immune responses to an exogenous antigen in rabbits (cf the whole document). Consequently, the subject matter of claims 1-5 and 14-16 is not novel with regard to D2

5.6 D3 discloses the adjuvant activity of various antibiotics on antigen specific immune responses (cf the whole document). Consequently, the subject matter of claims 1-5 and 14-16 is not novel with regard to D3.

5.7 D4 discloses the immunological activity and adjuvant effects of defensins, a class of anti-microbial compounds (see in particular p 293, right-hand column). Consequently, the subject matter of claims 1-4 and 14-16 is not novel with regard to D4.

5.8 The subject matter of claims 6-13, 17 and 18 is novel with regard to the prior art.

5.9 Inventive Step

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 6-13, 17 and 18 does not involve an inventive step in the sense of Article 33(3) PCT.

5.10 The closest prior art to claim 6 is D5 which discloses the a subunit vaccine containing an antigen from M. Haemolytica (cf the abstract).

5.11 The difference between claim 6 and D5 is that in claim 6 the adjuvant used is an antibiotic.

5.12 The problem to be solved is therefore to provide an alternate adjuvant for an M. Haemolytica vaccine.

5.13 Claim 6 solves this problem but cannot be considered inventive in light of the prior art. D1 discloses the use of the macrolide erythromycin as a vaccine adjuvant and hence the skilled person would consider it obvious to employ such a molecule as an adjuvant in a vaccine. Claim 6 cannot therefore be considered inventive (Article 33(3) PCT).

5.14 Claims 7-13 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step since they merely represent straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed (Article 33(3) PCT).

Re Item VIII
Certain observations on the international application

8.1 Claim 6 does not meet the requirements of Article 6 PCT because the scope of the claim is rendered unclear by use of the non-limiting term "such as".

8.2 Claims 15 and 16 do not meet the requirements of Article 6 PCT because the scope of said claims have been rendered unclear by the use of the phrase "..selected from the ..... agents described herein", thus the skilled person is left in doubt as to the nature of the claimed subject matter.